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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,167	07/09/2003	Shigeru Muramatsu	2552-000050	1106
27572	7590	07/13/2005	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303			WARREN, DAVID S	
			ART UNIT	PAPER NUMBER
			2837	

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/616,167	MURAMATSU ET AL.	
	Examiner David S. Warren	Art Unit 2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 09 July 2003.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-19 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-19 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 7/9/03 is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1.) Certified copies of the priority documents have been received.  
 2.) Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3.) Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 5 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The terms "upper" and "lower" in claim 5 is a relative term which renders the claim indefinite. These terms are not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Clarification is requested.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 2837

4. Claims 1 – 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Broadmoore (5,081,893). Regarding claims 1 and 14, Broadmoore discloses the use of an acoustic keyboard musical instrument including a case having a bottom board (2) formed with plural holes (fig. 1; 32, fig. 5), a tone generating mechanism (pianos inherently have tone generating systems), an automatic playing system (i.e., “player pianos” are automatic), plural actuators (3A, 3B; fig. 1) having plungers (19) passing through the holes, converters (16), and a controller (“selective energization and deenergization” are deemed equivalent to a “controller” – col. 6, lines 16 – 18). Any tool is deemed a “handy tool” and tools were inherently used to install and retrofit the actuators of Broadmoore. Regarding claims 2 and 19, the holes are larger than the plungers (fig. 2). Regarding claim 3, the screw-type thread of Broadmoore’s actuator is functionally equivalent to Applicant’s claim that the holes are “narrower than a cross section of associated one of said converters.” Regarding claim 4, fig. 1 of Broadmoore shows that holes, plungers, and converters are staggered. Regarding claim 5, as best as can be understood (see §112 rejection supra), “upper” is deemed to be that part of 2 used for mounting 3B, and the “lower” is used to mount 3A. Regarding claim 6, each plunger has a head (14), while Broadmoore is silent as to the resiliency of 14, Broadmoore does use element 14 in association with element 13 (felt, i.e., resilient) and element 29 (col. 6, lines 45 – 48 discuss the resilient washer 29). The Examiner maintains that the structure of Broadmoore is functionally equivalent to that of the Applicant. Regarding claim 7, Broadmoore discloses the use of a stopper (24, 25) movable with the hole (32). Regarding claim 8, as defined by Applicant, bushes are

shown in Broadmoore as elements 27 and 30). Regarding claim 9, Broadmoore describes retrofitting a grand piano (col. 2, lines 53 – 56), thus plural keys, plural action units, strings, and plural hammers are part of the Broadmoore invention. Regarding claims 10, 11, 16, and 17, Broadmoore discloses retrofitting either a grand piano or an upright piano (col. 6, lines 41 – 44). Regarding claims 12 and 13, Broadmoore shows the use of electrical solenoids (3). Regarding claims 15 and 18, while Broadmoore does not specifically mention “putting marks indicative of boundaries between keys” and “calculating an intermediate point...” these limitations appear to apply to positioning the converters on the piano. Certainly, Broadmoore would devise a system to correctly position the solenoids and actuators, otherwise, the Broadmoore invention would be inoperable. Therefore, the Examiner deems the limitations of claims 15 and 18 to be functionally equivalent to Broadmoore’s system for positioning and mounting the actuators.

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The patents to Hartling ('876) and Clark ('958) both disclose the use of plungers inserted through a bottom board.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Warren whose telephone number is 571-272-2076. The examiner can normally be reached on M-F, 9:30 A.M. to 6:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin can be reached on 571-272-2800 ext 37. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

dsw



MARLON T. FLETCHER  
PRIMARY EXAMINER